

A REVIEW OF THE MYDID GENUS *PSEUDONOMONEURA* BEQUAERT
(DIPTERA: MYDIDAE), WITH THE DESCRIPTION OF
TWO NEW SPECIES

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Abstract.—The mydid genus *Pseudonomoneura*, with six species is reviewed: *P. californica* (Hardy), *P. bajaensis*, n. sp., *P. hirta* (Coquillett), *P. micheneri* (James), *P. nelsoni*, n. sp. and *P. tinkhami* (Hardy). A lectotype is designated for *Leptomydas concinnus* Coquillett, a previously recognized junior subjective synonym of *P. hirta*. The male and female genitalia of all species are illustrated and a key to the species is presented.

Key Words: Diptera, Mydidae, *Pseudonomoneura*, mydid flies, Nearctic

The genus *Pseudonomoneura* was proposed by Bequaert (1961) for a small group of Nearctic species of flies originally placed in the genus *Nomoneura* (Hardy 1950). In 1971 Wilcox and Papavero provided the first adequate generic description of *Pseudonomoneura* in their review of the American genera of Mydidae. The genus *Pseudonomoneura* is most similar and appears related to the Nearctic genus *Nemomydas*, and species of both genera are sympatric. Males of *Pseudonomoneura* are easily separated from males of *Nemomydas* by the ventral process of the gonocoxite either produced singly (*P. hirta* (Coquillett), *P. micheneri* (James)), reduced (*P. californica* (Hardy)), or absent (*P. bajaensis*, n. sp., *P. nelsoni*, n. sp.). In all species of *Nemomydas*, the gonocoxites have a dorsal and ventral digitate process (Kondratieff and Welch 1990). Additionally, the apex of the aedeagus is an erect slender tube or tongue in *Nemomydas*, and a thick ventral bulb in *Pseudonomoneura*. Females of *Pseudonomoneura* may be separated from *Nemomydas* by the antennal club being shorter than or subequal in length to the basal flagellomere (Wilcox 1981). In their key to the American genera

of Mydidae, Artigas and Papavero (1990) added that females of *Pseudonomoneura* have the "spermathecae with 3 capsules," and *Nemomydas* with "two capsules." The number of capsules actually range from two to three in *Pseudonomoneura*.

Hardy (1950) previously characterized *Pseudonomoneura* as having the proboscis "developed well beyond the oral margin." However, both *P. bajaensis*, n. sp. and *P. nelsoni*, n. sp. have vestigial mouthparts.

Wilcox and Papavero (1971) indicated that the geographic range of *Pseudonomoneura* included Utah and northern Mexico states of Sonora, Chihuahua and Coahuila. No specimens from these areas were available for examination.

Morphology and terminology follows Wilcox (1981). Abbreviations for depositories of specimens are: California Academy of Sciences (CAS); Arizona State University (ASU); C. P. Gillette Museum of Arthropod Diversity, Colorado State University (CSU); Florida State Collection of Arthropods (FSCA); Los Angeles County Museum of Natural History (LACMNH); University of Arizona (UA); University of California, Davis (UCD); National Museum of Natural

History, Smithsonian Institution (USNM); Utah State University (USU); Washington State University (WSU); W. F. Barr Entomological Collection, University of Idaho (WFBM).

KEY TO THE SPECIES OF
PSEUDONOMONEURA

(female unknown for *P. bajaensis*,
new species)

- 1. Mouthparts vestigial 2
Mouthparts well-developed 3
- 2. Male terminalia with upper forceps of epandrium simple (Figs. 20, 21). Female with abdomen globose, wider than thorax (Fig. 24); terminalia as Fig. 23 *P. nelsoni*, new species
Male terminalia with upper forceps of epandrium bifurcate (Figs. 17 and 18)
..... *P. bajaensis*, new species
- 3. Proboscis long, extending to second flagellomere (club) 4
Proboscis short, extending only to or middle of first flagellomere *P. tinkhami*
- 4. Male terminalia with upper forceps of epandrium with subapical digitiform inward projecting process (Figs. 1, 2). Male and female antennal flagellomeres black. Female terminalia as Fig. 4 *P. californica*
Male terminalia with upper forceps of epandrium without a subapical digitiform process (Figs. 6, 10). Second antennal flagellomere tinged with red or yellow. Female terminalia as Figs. 8 and 16 5
- 5. Male with upper inner flange of upper forceps of epandrium weakly developed in lateral view, apex narrowly rounded (Fig. 5). Female terminalia as Fig. 8. Abdominal setae usually dense yellow, sometimes gray *P. hirta*
Male with upper inner flange of upper forceps of epandrium strongly developed in lateral view, apex bluntly truncate (Fig. 9). Female terminalia as in Fig. 12. Abdominal setae usually white *P. micheneri*

Pseudonomoneura californica (Hardy)
Figs. 1–4

Nomoneura californica Hardy 1950: 11.
Holotype male (CAS), USA: California:
Riverside County, Blythe, 15 July 1947,
J. M. MacSwain, *Tamarix*; examined.

Diagnosis.—The red tergites will distinguish both sexes from all other species, except red variants of *P. micheneri* (James).

In the male of *P. californica*, the upper forceps of the epandrium have a subapical digitiform process which projects inward in dorsal view (Fig. 2), and posteriorly in lateral view (Fig. 1), whereas the upper forceps of *P. micheneri* lack this process (Figs. 9, 10). Females of *P. californica* can be separated from females of *P. micheneri* by the distinctive shape of the furca, and the more heavily sclerotized edge of tergite ten (Fig. 4). Additionally, the antennae of *P. californica* are entirely black, whereas the second flagellomere of *P. micheneri* are usually orange-yellow.

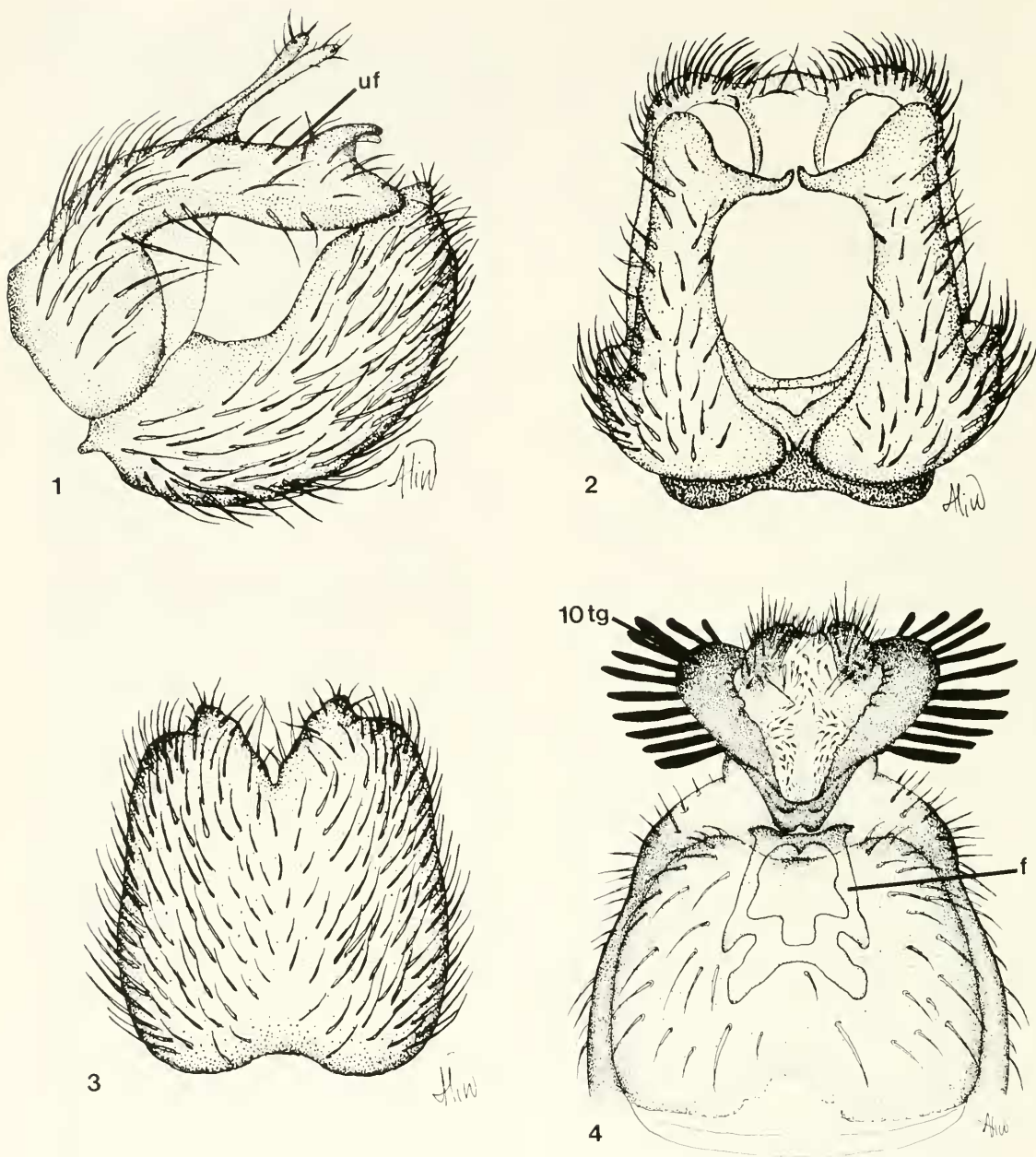
Discussion.—Hardy (1950) indicated that *P. californica* was related to *P. micheneri*. However, *P. californica* appears to be much more similar to *P. bajaensis*, n. sp. (Figs. 17–19), and *P. nelsoni*, n. sp. (Figs. 20–22). All three species lack the flanges of the upper forceps of the epandrium and the ventral processes of the gonocoxites are reduced or absent.

Distribution.—Arizona and California to Baja California, Mexico.

Specimens examined.—USA: Arizona: La Paz Co.: Ehrenberg, 16 June 1938, F. H. Parker, 1 female (USNM); Maricopa Co.: 1.6 mi. E. Barnes Butte nr. Papago Park, 1250', 26 May 1975, M. Kolner, 1 male, 2 females (1 male, 1 female in copula) (ASU); California: Imperial Co.: Walters Camp Road, 5–6 May 1985, R. Parks, 1 male (CSU); 15 mi. E. Calexico, UV light, 5 June 1961, G. H. Nelson, 1 male (FSCA); Riverside Co.: Blythe, 10 July 1947, J. M. MacSwain, 1 male (USNM); Whitewater, 3 July 1967, W. F. Barr, 1 male (WFBM); MEXICO: Baja California: 13 mi. N. San Felipe, 9 June 1968, low sandy hills, sand burrs, *Prosopis*, *Lophocerus*, and *Franseria*, N. Leppla, J. Bigelow, M. Cazier, J. Davidson, 1 male (ASU).

Pseudonomoneura hirta (Coquillett)
Figs. 5–8

Leptomydas hirta Coquillett 1905: 39. Holotype male (USNM), USA: California:



Figs. 1-4. *Pseudonomoneura californica*. 1, Male terminalia, lateral view. 2, dorsal view. 3, ventral view. 4, Female terminalia, ventral view. (Abbreviations: f, furca; tg, tergite; uf, upper forceps of the epandrium.)

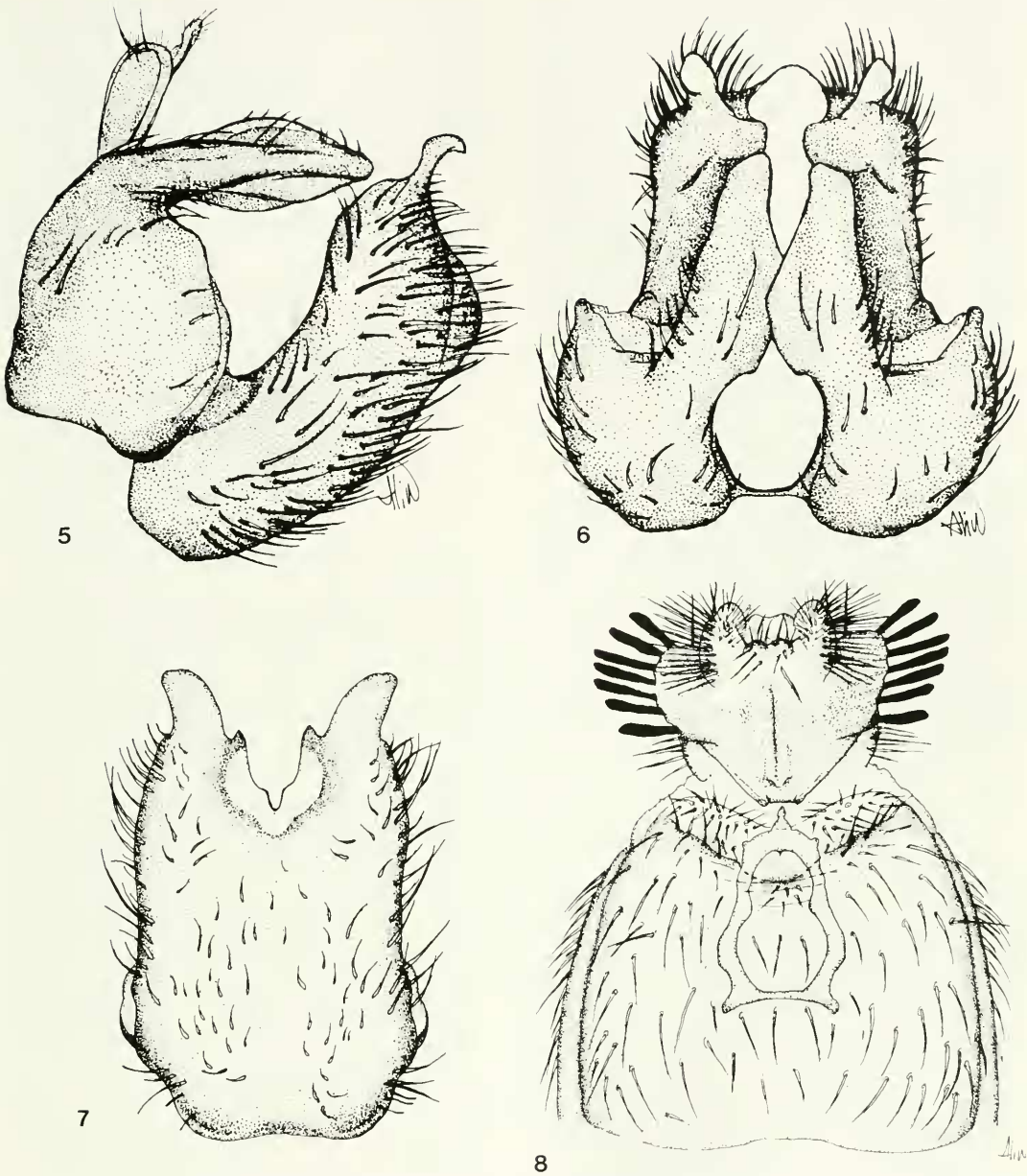
Los Angeles County, Claremont, Baker, Type No. 7731; examined.

Leptomydas concinnus Coquillett 1905: 39. (Synonymized by Hardy 1950: 15.) Lectotype (here designated) male (USNM), USA: California: Los Angeles County,

June, Coquillett collection. Washington, D.C.; examined.

Nomoneura hirta: Hardy 1950: 15.

Diagnosis.—*Pseudonomoneura hirta* is closely related to *P. micheneri* and *P. tink-*



Figs. 5-8. *Pseudonomoneura hirta*. 5, Male terminalia, lateral view. 6, dorsal view. 7, ventral view. 8, Female terminalia, ventral view.

hami based upon the similarity of male genitalia. In dorsal view the upper forceps of the epandrium of *P. hirta*, *P. micheneri* and *P. tinkhami* are very similar (Figs. 6, 10, 14). However, in lateral view the upper forceps of both *P. micheneri* and *P. tinkhami* have the upper inner flange strongly pro-

duced and the apex bluntly truncate (Figs. 9, 13), whereas the upper inner flange of *P. hirta* is weakly developed and the apex narrowly rounded (Fig. 5). In ventral view the gonocoxites of *P. hirta* are cleft about one-fifth their length with the ventral processes strongly produced into two outwardly and

ventrally projecting lobes (Fig. 7). Females of *P. hirta* are best separated by the presence of usually dense yellow pile on abdominal tergites, and the shape of the furca (Fig. 8).

Discussion.—Hardy (1950) provides an adequate description of both the male and female, including the occurrence of two morphs, a more common one with conspicuous yellow abdominal pile and populations with gray abdominal pile. Separation of unassociated females of *P. hirta* and *P. micheneri* can be difficult due to the similarity of terminalia and the variable coloration of these two species.

Through the kindness of Norman E. Woodley, Smithsonian Institution, syntypes of *Leptomysdas concinnus*, a previously recognized junior subjective synonym (Hardy 1950), were made available for study. These specimens are typical *P. hirta*. *Pseudonomoneura hirta* is apparently common in areas of southern California. This species is very similar in general habitus to the sympatric *Nemomydas pantherinus* (Gerstaecker) (Kondratieff and Welch 1990).

Distribution.—California to Baja California.

Material examined.—USA: California: Claremont Co.: "Topotype," 1 male, 1 female (USNM); 2 males, 3 females (USNM); Kern Co.: Short Cyn., 11 April 1976, J. B. Johnson, 1 male, 1 female (WFBM); Los Angeles Co.: Charlton Flat, San Gabriel Mts., 29 June 1975, Menke and Pulawski, 1 male (USNM); July, Coquillett coll., "Syntype," 2 females (USNM); Glendora Ridge 1 mi. above Mt. Baldy Village, 17 June 1987, 1 female (LACMNH); Pine Canyon, 6 July 1954, 2 males (LACMNH); Pearblossom, 2 mi. S., 3500', 1–2 May 1977, R. R. Snelling, 1 male (LACMNH); Crystal Lake, 9 July 1952, D. Shepherd, 2 males, 1 female (LACMNH); Tanbark Flat, 20 July 1952, D. Shepherd, 1 female (LACMNH); Tanbark Flat, 12 July 1952, D. Shepherd, 1 female (LACMNH); Tanbark Flat, 25 June 1952, D. Shepherd, 1 female (LACMNH); Tanbark Flat, 21 June 1950, J. K. Windsor,

1 female (LACMNH); Tanbark Flat, 27 June 1950, J. K. Windsor, 1 female (LACMNH); Tanbark Flat, 29 June 1952, B. Tinglof, 1 male, 1 female (LACMNH); San Gabriel Can., 3200', 28 June 1975, R. L. Westcott, 1 male (WFBM); Mono Co.: Sherwin Summit, Hwy. 395, 7000', 8 Sept. 1975, R. R. Snelling, on *Chrysothamnus*, 1 female (LACMNH); Orange Co.: Anaheim 7551 Vista Del Sol, 26 July 1977, ca. 180 m, P. H. Arnaud Jr., 1 male (CAS); Riverside Co.: Pinon Flat, San Jacinto Mts., 30 May 1939, P. D. Gerhardt, 1 male, 1 female (UA); San Bernardino Co.: Phelan, Sheep Crk. Can., 9 May 1949, A. L. Melander, 1 male (USNM); 1 female (USNM); vic. Cajon Summit, 1250 m, 3 July 1980, R. L. Westcott, 1 male (CSU); Lytle Creek Road, 2700', 4 mi. NW Nealey's Corner, 5 June 1976, R. R. Snelling and C. D. George, 1 female (LACMNH); Camp Baldy, 8 July 1952, D. Shepherd, 1 female (LACMNH); same locality but, B. Tinglof, 2 males, 2 females (LACMNH); same locality but, 26 June 1950, J. K. Windsor, 1 male (LACMNH); Lonepine Can., 5 mi. SE Wrightwood, 1375 m, 2 July 1980, R. L. Westcott, 1 male (WFBM); San Gabriel Mts., 2 mi. E Wrightwood, 1 June 1986, G. H. Nelson, 1 male, 1 female (FSCA); San Diego Co.: Pala, 6 June 1945, A. L. Melander, 1 male (USNM); Rutherford Ranch, San Felipe Valley, 8 May 1993, R. Parks, 1 male (CSU); Point Loma, 28 May 1978, L. Guidry, 1 male (CSU); Point Loma, 28 June 1977, L. Guidry, 1 male (CSU); Co.?: Mt. Lowe, 3 July 1917, J. M. Aldrich, 6 males, 4 females (USNM); Forest Home, 2 June 1934, C. Dammers, 1 female (USNM); San Gabriel Mts., 4000 ft., Long canon, 3 July 1910, F. Grinnell Jr., 1 male, 1 female (USNM); San Gabriel Mts., 1–3 July 1914, F. Grinnell Jr., 1 female (USNM); MEXICO: Baja California: Norte Sierra Juarez, 6 mi. N. of Laguna Hanson, 3 June 1982, Faulkner and Brown, 1 male (CSU); same locality but, 22 June 1980, 1 male (CSU); Ensenada, 31 May 1954, 1 male (LACMNH).

Pseudonomoneura micheneri (James)

Figs. 9–12

Nomoneura micheneri James 1938: 63. Holotype male (WSU), California: Riverside County, 7 mi. S. White Water, 13 April 1935, C. D. Michener, in copulation; examined.

Nomoneura micheneri: Hardy 1950: 17.

Diagnosis.—The long proboscis, extending beyond the apex of the first flagellomere and the second flagellomere orange or tinged with red-orange will separate this species from the very closely related *P. tinkhami*. Additionally, males of *P. micheneri* can be distinguished by the more strongly produced upper inner flange of the forceps of the epandrium (Fig. 9).

The male genitalia of *P. micheneri* are also similar in structure to *P. hirta*, but in lateral view the upper inner flange of the upper forceps of *P. micheneri* is more strongly developed with the apex bluntly truncate (Fig. 9) in comparison to the weakly developed upper inner flange of *P. hirta*, with the apex narrowly rounded (Fig. 5). Additionally, in ventral view, the gonocoxites of *P. micheneri* have the ventral processes straight (Fig. 11) rather than divergent (Fig. 7), as in *P. hirta*.

Discussion.—*Pseudonomoneura micheneri* is very similar to *P. tinkhami*, and not closely related to *P. californica* as previously indicated by Hardy (1950). Apparently, Hardy based this relationship on the similarity of the red abdominal tergites of some *P. micheneri* populations. Records of this species include a good series from the Nevada Test Site. This unique area has been well described by Knight (1968).

Distribution.—Arizona, Nevada to California.

Material examined.—USA: Arizona: Mojave Co.: Chloride 4 mi. W., 28 April 1972, G. Bohart, P. Torchio and F. Parker, 1 male (USU); California: San Bernardino Co.: Morongo V., 16 April 1957, R. R. Snelling, 2 males, 1 female (LACMNH); 11

mi. N. Needles, 29 April 1982, *Eriogonum*, P. F. Torchio, 8 males, 1 female, 1 ? (missing tip of abdomen) (USU); 15 mi. N. Needles, 7 May 1982, P. F. Torchio, 1 male (USU); Cottonwood Wash, 2520', Sec. 3 T9N R12E, 10 May 1982, T. Griswold, 1 male (USU); Winston Wash, 2500', Sec. 19 T109 R13E, 10 May 1982, T. Griswold, 1 male (USU); Kelso Dunes, 2600', Sec. 30 T10N R13E, 10 May 1982, T. Griswold, 1 female (USU); Lake Havasu, 15 April 1966, D. L. Coates, 2 males, 1 female (WFBM); San Diego Co.: 1 mi. S. Ocotillo Wells, 26 March 1977, R. W. Brooks, 1 male (UCD); Nevada: Clark Co.: Mercury, 28 April 1962, [BYU AEC NTS], 8 males, 11 females (USNM); same locality but 6 May 1961, 1 male, 1 female (USNM); same locality but 7 May 1961, 1 female (USNM); same locality but 12 May 1962, 1 female (USNM); Juanita Spr. Ranch S. of Riverside, 11–21 May 1983, F. D. and J. H. Parker, 3 males (USU); Riverside, 11–21 May 1983, F. D. and J. H. Parker, 1 female (USU); Lincoln Co.: Alamo, 28 April 1973, F. Parker and P. Torchio, 1 female (USU).

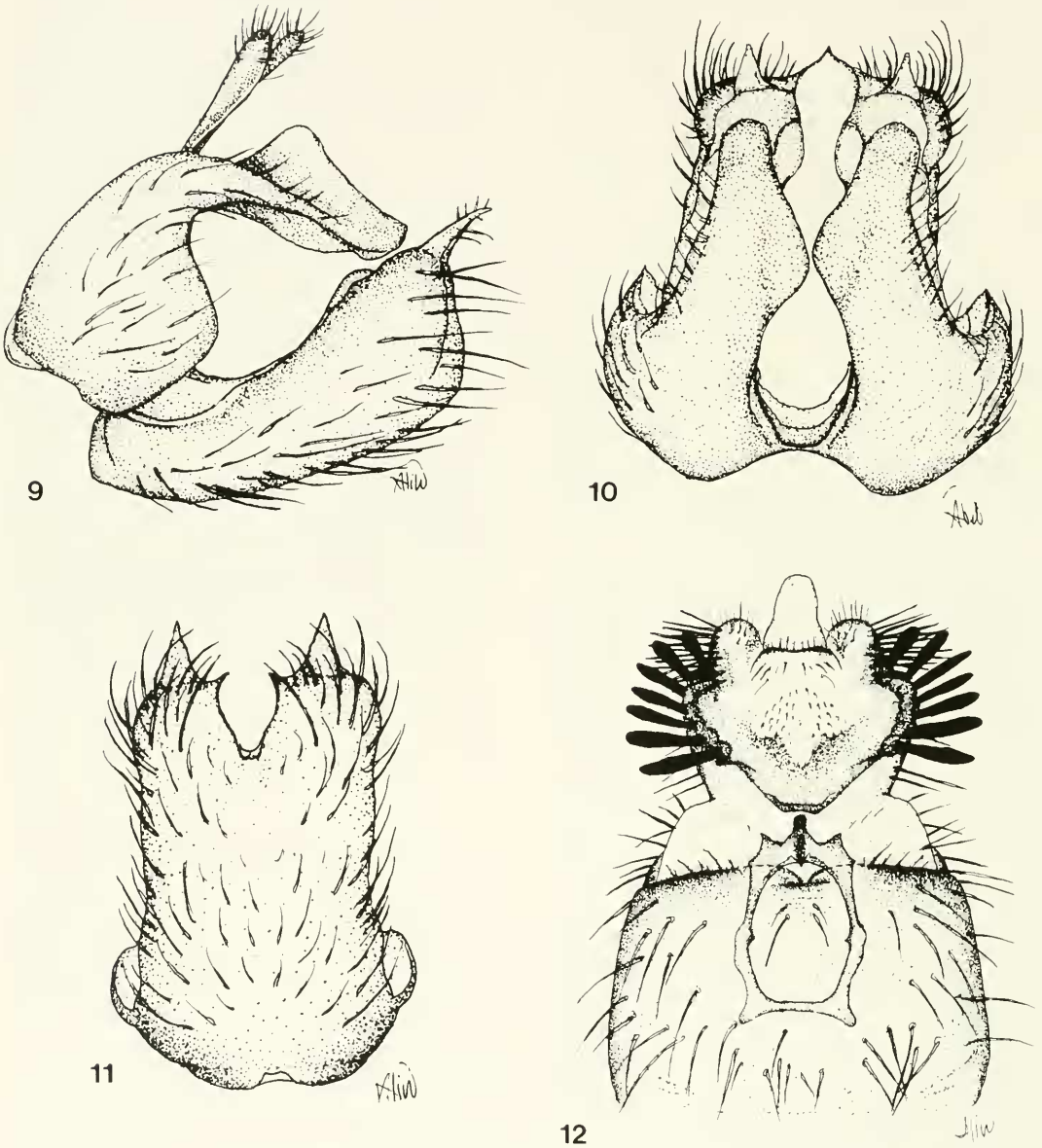
Pseudonomoneura tinkhami (Hardy)

Figs. 13–16

Nomoneura tinkhami Hardy 1950: 18. Holotype male (CAS) (lost), USA: California: Inyo County, above Glacier Lodge, 21 August 1938, E. R. Tinkham.

Diagnosis.—This species is very similar to *P. micheneri* but can be separated by the shorter proboscis, with the apex not extending beyond middle of the first flagellomere, black antennae and shape of the upper forceps of the epandrium (Fig. 13).

The male genitalia of *P. tinkhami* are also similar in structure to *P. hirta*, but in lateral view the upper inner flange of the upper forceps of *P. tinkhami* is more strongly developed with the apex bluntly truncate (Fig. 13) in comparison to the weakly developed upper inner flange of *P. hirta*, with the apex narrowly rounded (Fig. 5). Additionally, in

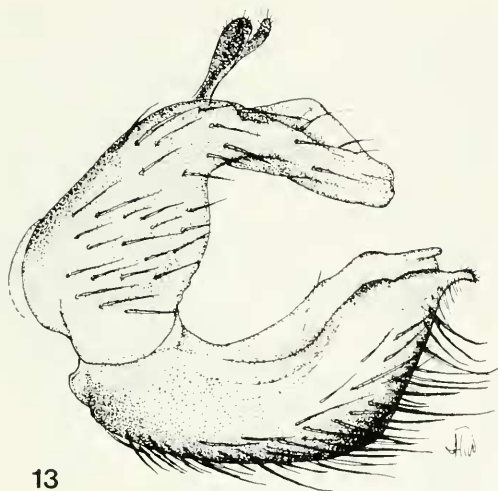


Figs. 9–12. *Pseudonomoneura micheneri*. 9, Male terminalia, lateral view. 10, dorsal view. 11, ventral view. 12, Female terminalia, ventral view.

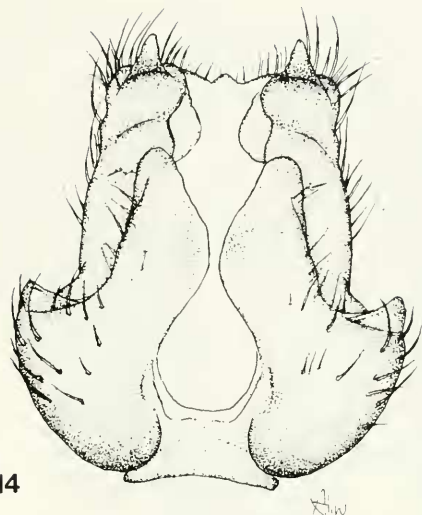
ventral view, the gonocoxite of *P. hirta* has the ventral process strongly developed into divergent lobes (Fig. 7). Females of *P. tinkhami* can distinguished most reliably from *P. hirta* by the shape of the furca (Fig. 16).

Discussion.—The original description of

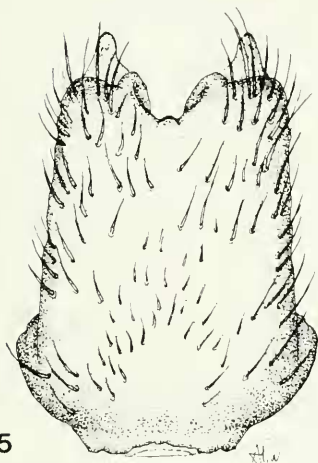
P. tinkhami was based on a single male from “above Glacier Lodge, California.” The holotype was returned to the E. R. Tinkham Collection (Hardy 1950), which was later donated to the CAS. Unfortunately, this specimen is apparently lost (Dr. Paul H. Ar-



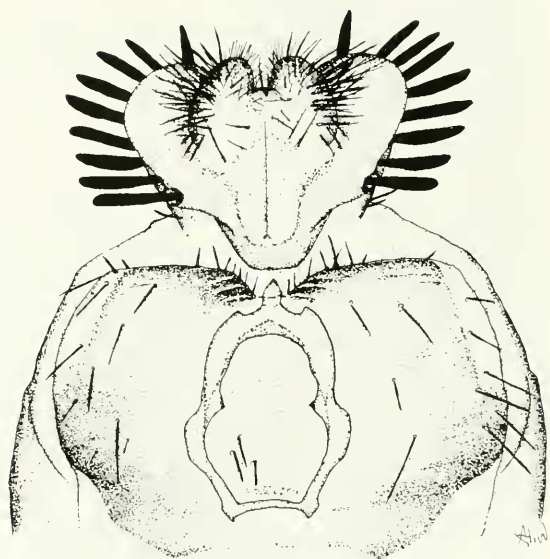
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Figs. 13–16. *Pseudonomoneura tinkhami*. 13, Male terminalia, lateral view. 14, dorsal view. 15, ventral view. 16, Female terminalia, ventral view.

naud, Jr., personal communication). Additional inquiries were made to Mark O'Brien, Museum of Zoology, University of Michigan, where some of Tinkham's material is deposited. However, no *Pseudonomoneura* specimens were located. A male specimen in the CAS, labeled as a "topo-type" [of *P. tinkhami*] by the late Joseph Wilcox, is identical to Hardy's (1950) orig-

inal description and has the distinctive short proboscis as figured for *P. tinkhami* (Hardy 1950; Fig. 4a), and we base our concept of the species on this specimen. This late season species is apparently rare and has a limited distribution in California.

Distribution.—California.

Material examined.—California: Inyo Co.: Sherwin Summit, 14 Sept. 1963, J. Wil-

cox, 1 female (CAS); Big Pine, Glacier Lodge, 8–9000', 9 Aug. 1957, Dorothy Martin, 1 male (labeled as Topotype of *P. tinkhami*, Det. J. Wilcox) (CAS); Big Pine, 12 Aug. 1957, J. Wilcox, 1 male (CAS); Big Pine, 6500', 7 Aug. 1966, J. Wilcox, 2 males, 1 female (CAS); Toms Place, 8 Aug. 1962, L. A. Stange, 1 male (CAS); Symmes Creek, 6900', 18 Aug. 1982, A. S. Menke, 1 female (USNM); Mono Co.: 6.5 mi. NW Benton Hot Springs, 2000 m, 3 Aug. 1980, R. L. Westcott, 2 males, 2 females (WFBM).

***Pseudonomoneura bajaensis*
Fitzgerald and Kondratieff,**

NEW SPECIES

Figs. 17–19

Holotype: Male (CAS), MEXICO: Baja California Sur, 10 June 1975, Pto. Chale, 60 km S. San Carlos, Howard E. Evans, Biological Note No. 2443.

Paratypes: Male, MEXICO: Baja California Sur.: 7–9 June 1975, San Carlos, Howard E. Evans, W. Rubink, and D. Gwyne (CSU). There was no biological note attached to this specimen.

Description.—*Male*: Frons densely silver-white tomentose with dense white pile. Occiput, middle of face, and vertex black; vertex with white-yellow pile on either side of occiput. Antenna short, stout, black, with long black setae on pedicel and scape. Mouthparts vestigial. Thorax: Mesonotum opaque black in ground color with four broad densely tomentose, silver-white vittae, which are narrowly joined on the hind part of the thorax just before the scutellum. Pleura shining dark brown. Halter yellow. Scutellum dark brown with thin white pile medially. Legs: Entirely brown. Hind leg with brown hair, femur swollen, and black flexor spines moderately developed. Pro- and mesothoracic legs clothed with longer white setae. Wings: Hyaline 6.5–7 mm. Venation as in other *Pseudonomoneura*. Abdomen: Tergite 1 brown-black, tergites 2–6 dark brown-black with yellow-white posterior margins. Tergites 1–3 with long white pile, tergite 1

tomentose throughout, tergite 2 laterally and sparsely medially, and tergite 3 only anteromedially. Remaining tergites with short black setae and some short yellow setae posterolaterally. Sternites brown. Bullae larger and black. Genitalia: Upper forceps of the epandrium bifurcate, in dorsal view inner lobe longer and square tipped, outer lobe shorter and acute (Fig. 18). In lateral view both lobes appear acute, the lower outer lobe shorter (Fig. 17). Gonocoxites with U-shaped cleft extending about one-fourth their length, ventral processes of the gonocoxites absent (Fig. 19).

Female: Unknown.

Etymology.—The epithet is derived from the Baja Peninsula.

Diagnosis.—The male of *P. bajaensis* is easily distinguished from other *Pseudonomoneura* by the vestigial mouthparts and from *P. nelsoni*, n. sp. by the bifurcate upper forceps of the epandrium (Figs. 17, 18). The female is unknown.

Discussion.—The holotype male was excavated by H. E. Evans from cells of a ground nest of *Bembix rugosa* Parker (Hymenoptera: Sphecidae). This specimen was still fresh when collected and along with two specimens of *Ablautus flavipes* Coquillett (Asilidae), were provisions for a nearly full grown wasp larva (Evans 1976). The terminalia of the paratype are missing.

***Pseudonomoneura nelsoni*
Fitzgerald and Kondratieff,**

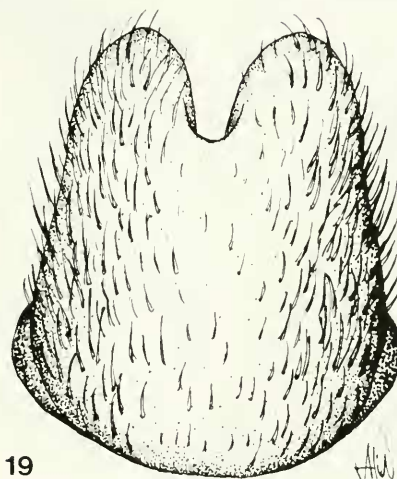
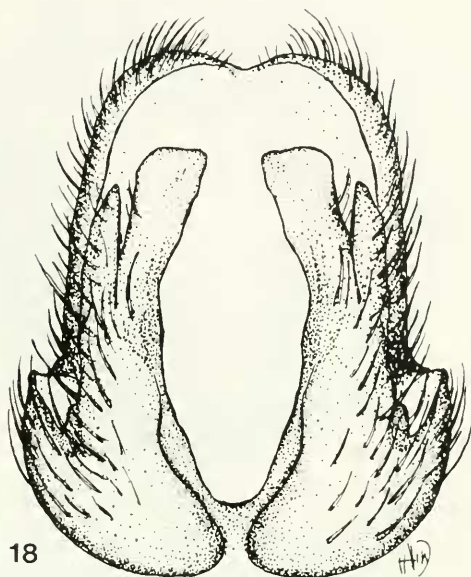
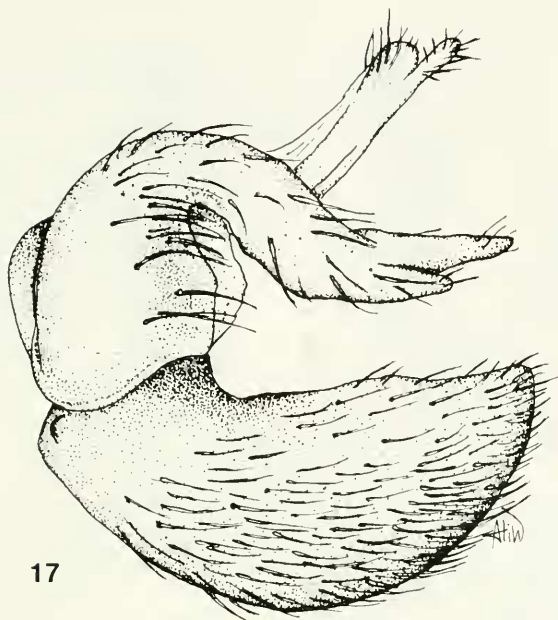
NEW SPECIES

Figs. 20–24

Holotype: Male (CAS), USA: California: Riverside Co., 7 mi. S. W. Palm Springs, 7 September 1971, N. Papavero.

Paratypes: USA: California, San Bernardino Co., Cottonwood Wash, S3T9NR-12E, 2520', 23 August 1981, T. Griswold, 1 male (USU); same data as holotype, 1 male, 19 females (CAS); Coachella Dunes (near Washington Street), 9 April 1988, R. Rogers, 3 males (LACMNH).

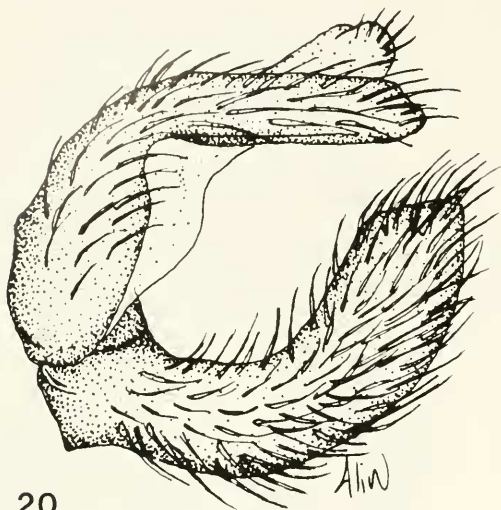
Description.—*Male*: Frons densely sil-



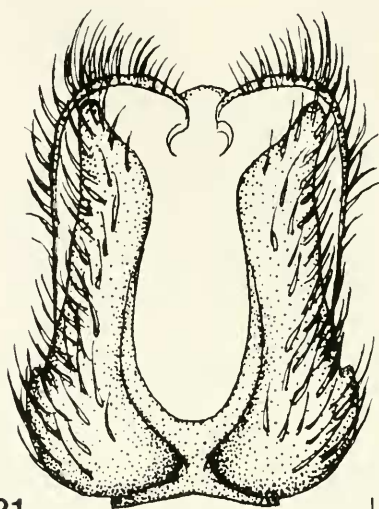
Figs. 17–19. *Pseudonomoneura bajaensis*. 17, Male terminalia, lateral view. 18, dorsal view. 19, ventral view.

ver-white tomentose. Occiput black, middle of face black-brown. Antenna short, stout, light brown with short white setae on pedicel and scape. Mouthparts vestigial. Thorax: Mesonotum densely tomentose opaque gray in ground color with four broad densely tomentose silver-white vittae, which are narrowly joined on the hind part of the thorax just before the scutellum. Pleura shining

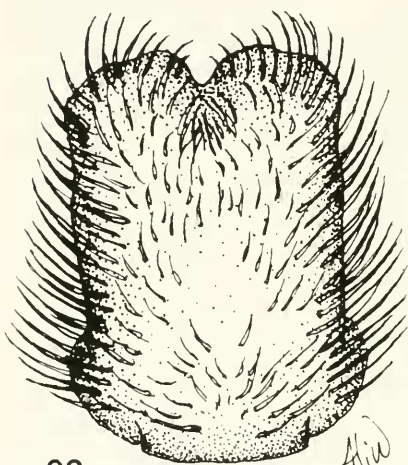
brown with some areas of thin silver-white tomentum. Halter yellow. Scutellum silver-white tomentose. Legs: Entirely light brown-yellow. Hind leg with brown-yellow hair, femur not swollen, and brown flexor spines weakly developed. Pro- and mesothoracic legs clothed with longer white setae. Wings: Hyaline, 5–7 mm. Venation as in other *Pseudonomoneura*. Abdomen: Tergites gray-



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Figs. 20-23. *Pseudonomoneura nelsoni*. 20, Male terminalia, lateral view. 21, dorsal view. 22, ventral view. 23, Female terminalia, ventral view.

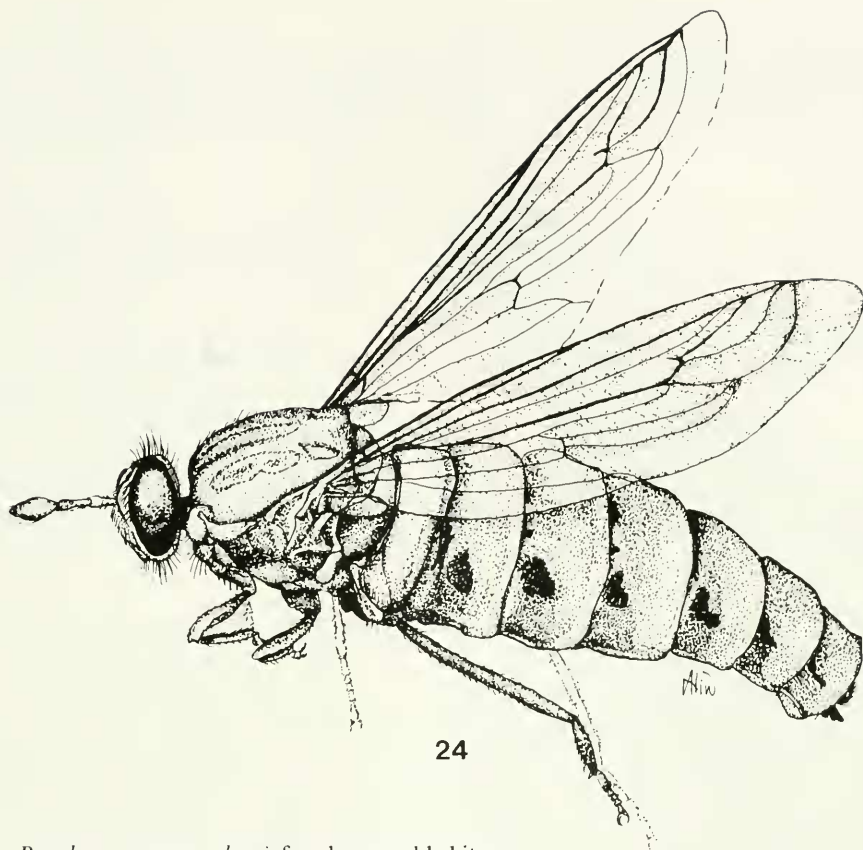


Fig. 24. *Pseudonomoneura nelsoni*, female general habitus.

brown with yellow-white posterior margins sometimes as wide as the posterior half of the tergite. All tergites with thin silver-white tomentum and long white decumbent pile. Sternites entirely yellow-brown with short yellow-white pile. Bullae dark brown. Genitalia: In dorsal view the upper forceps of the epandrium slender and bent outward apically (Fig. 21), in lateral view, slightly square tipped, lacking upper and lower flanges (Fig. 20). Gonocoxites cleft only about one-eleventh of their length, with the ventral processes absent (Fig. 22).

Female: Head: Yellow-brown with some light brown tomentum. Occiput dark brown shining. Antenna short, stout, yellow, about twice as long as head. Mouthparts vestigial. Thorax: Yellow-brown in ground color with three brown vittae on mesonotum. Mesonotal pattern densely tomentose. Halter yellow.

Pleura mostly shining with some tomentose areas. Legs: Yellow, hind femur with strong flexor spines. Wings: Hyaline, 9–12 mm. Venation as in other *Pseudonomoneura*. Abdomen: Yellow-brown with dark brown markings anteromedially and anterolaterally on tergites (Fig. 24). Bullae small and inconspicuous. Abdomen globose, wider than thorax (Fig. 24). Terminalia as Fig. 23.

Etymology.—The patronym honors Dr. C. Riley Nelson, University of Texas. He has provided much kind assistance with the junior author's studies of Diptera.

Diagnosis.—Males of *P. nelsoni* can be separated from all other species of *Pseudonomoneura* with the exception of *P. bajaensis* by the vestigial mouthparts. Additionally, this species can be easily distinguished from *P. bajaensis* by the sim-

ple rather than bifurcate structure of the upper forceps of the epandrium. The combination of a globose abdomen (Fig. 24) and vestigial mouthparts will separate *P. nelsoni* from all other known females of *Pseudonomoneura*.

Discussion.—The form of the upper forceps of the epandrium of the male are unique within this genus, lacking the digitate structure of *P. californica*, the bifurcate structure of *P. bajaensis*, or the upper and lower flanges of *P. hirta*, *P. micheneri* and *P. tinkhami*.

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LITERATURE CITED

- Artigas, J. N. and N. Papavero. 1990. Studies of Mydidae (Diptera). V. Phylogenetic and biogeographic notes, key to the American genera and illustrations of spermathecae. *Gayana Zoologia* 54: 87–116.
- Bequaert, M. 1961. Contribution a la connaissance morphologique et a la classification des Mydidae (Diptera). *Brussels Institut Royal des Sciences Naturelles de Belgique Bulletin* 37: 1–18.
- Coquillett, D. W. 1904. Reports on Californian and Nevadan Diptera, I. In C. F. Baker. *Diptera. Invertebrata Pacifica* 1: 17–39.
- Evans, H. E. 1976. Bembicini of Baja California Sur: Notes on nests, prey, and distribution. *Pan-Pacific Entomologist* 52: 314–320.
- Hardy, D. E. 1950. The Nearctic *Nomoneura* and *Nemomydas* (Diptera: Mydidae). *Wasmann Journal of Biology* 8: 9–37.
- James, M. T. 1938. Notes on some North American Mydidae (Diptera). *Entomological News* 49: 63–64.
- Knight, H. H. 1968. Taxonomic review: Miridae of the Nevada Test Site and the Western United States. *Brigham Young University Science Bulletin, Biological Series* 9: 1–282.
- Kondratieff, B. C. and J. L. Welch. 1990. The *Nemomydas* of southwestern United States, Mexico, and Central America (Diptera: Mydidae). *Proceedings of the Entomological Society Washington* 92: 471–482.
- Wilcox, J. and N. Papavero. 1971. The American genera of Mydidae (Diptera), with the description of three new genera and two new species. *Arquivos de Zoologia, San Paulo* 21: 41–119.
- Wilcox, J. 1981. Mydidae, pp. 533–540. In McAlpine, J. F., B. V. Peterson, E. Shewell, G. E. Teskey, J. R. Vockeroth, and D. M. Wood, eds., *Manual of Nearctic Diptera*. Vol. 1. Agriculture Canada Monograph 27.